Permitting decisions

Bespoke permit

We have decided to grant the permit for Spondon Peaking Plant operated by UK Utility Reserve Limited.

The permit number is EPR/AP3039QA/A001.

We consider in reaching that decision we have taken into account all relevant considerations and legal requirements and that the permit will ensure that the appropriate level of environmental protection is provided.

Purpose of this document

This decision document provides a record of the decision making process. It summarises the decision making process in the decision checklist to show how all relevant factors have been taken in to account.

This decision document provides a record of the decision making process. It:

- highlights key issues in the determination
- summarises the decision making process in the decision checklist to show how all relevant factors have been taken into account
- shows how we have considered the consultation responses.

Unless the decision document specifies otherwise we have accepted the applicant's proposals.

Read the permitting decisions in conjunction with the environmental permit. The introductory note summarises what the permit covers.

Key issues of the decision

Description of the main features of the application

The installation is based approximately 3km east of the centre of Derby centred on National Grid Reference SK 40407 34453.

The installation comprises 20 gas engines that are designed to operate to provide electricity to the grid under the capacity market. The plant operates for short period to provide electricity during peak demand. Each engine is designed to generate 2 MWe. The engines have an aggregated thermal input of 99.754 MW. Each engine will be fuelled by natural gas and will discharge via individual stacks 8 meters high.

The Power Plant will supply electrical power on a short term basis meeting peak demand with the electrical distribution network. It will operate for a maximum of 1,500 hours per year as a rolling average as and when called upon by the National Grid.

The Power Plant will supply electrical power on a short term basis meeting peak demand with the electrical distribution network.

BAT assessment

Combustion technology

The Applicant carried out a review of the following candidate combustion technologies and made an assessment of the technology in order to determine which technology can be considered the best available technique (BAT).

- Combined Cycle Gas Turbines (CCGT)
- Open Cycle Gas Turbines (OCGT)
- Aero Derivative Gas Turbines
- Gas Engines (GE)
- Diesel Engines (DE)

Based on the results of this assessment, the Applicant has chosen Spark Ignition Gas Engines for the following reasons:

- Fast start up times suitable for the balancing market.
- There is no requirement for on-site fuel storage.
- The achievement of Medium Combustion Plant Directive (MCPD) limit without the need for secondary abatement.
- Higher thermal efficiencies than diesel engines and OCGTs.
- Lower emissions than diesel engines.
- The engines meet the operational criteria for the balancing market.

Choice of Fuel

The Applicant has chosen mains gas as this represents the most reliable and least polluting fuel available for use at the site. By using mains gas, there will be negligible emissions of sulphur and particulates and by operating in a lean-burn mode, the quantities of nitrogen oxides emitted comply with the Medium Combustion Plant Directive for new gas fuelled engines.

The choice of mains gas only (not dual fuel) also minimises the need to store significant quantities of raw materials on-site. We are satisfied that mains supply natural gas represents BAT in terms of fuel choice for this installation.

Primary Emissions Controls

The engines operate using the principle of lean-burn combustion to offer high rate of efficiency and a primary method of minimising exhaust emissions to air.

Assessment against BAT standards for the energy balancing market

The Applicant has compared the chosen technology against the Department of Energy and Climate Change draft report Developing Best Available Techniques for Combustion Plants operating in the balancing market, dated June 2016. We are satisfied the spark ignition engines exceed the minimum efficiency for electrical generation and the oxides of nitrogen (NOx) emissions will achieve 95 mg/m^3 in line with the requirements of the Medium Combustion Plant Directive. Although we would not consider this type of plant BAT for operation of over 1,500 hours as an annual average, as this site will operate as peaking plant below this threshold we are satisfied that it is appropriate technology for the mode of operation.

BAT for Stack Height

An assessment of BAT for stack height was requested as no justification for the selection of 8 metre high stacks was provided with the original application. The assessment demonstrated that an increase in stack height would not result in a significant reduction in process contribution of oxides of nitrogen from the process.

Emissions to air

There are no predicted exceedances of the annual mean nitrogen dioxide (NO_2), short-term NO_2 or carbon monoxide (CO) Air Quality Standards (AQSs) at any locations representative of relevant exposure at the

modelled receptor locations. We agree with these conclusions. There are the potential for exceedences of the short term 24 hourly NOx critical level at the Former Shardlow Sewage works and River Derwent local wildlife sites if the site were to operate for more than 6 hours within a 24 hour period. However in reality this is unlikely to be the case for this installation due to its role within the balancing market with likely operating periods of a maximum of two periods of 2 hours of operation per day (7-9am and 5-7pm).

There is insufficient evidence regarding the effects of enhanced lean burn (ELB) on methane slip and formaldehyde production by oxidation or incomplete combustion of hydrocarbons at raised carbon monoxide levels. Improvement Conditions IC02 and IC03 have been included to establish these emission levels under ELB, compare them with the manufacturer's specifications and appropriate benchmark levels and undertake an assessment of the impacts of carbon monoxide emissions and possible impacts of formaldehyde in line with our H1 guidance or equivalent methodology. These improvement conditions are applied to all new installations using spark-ignition engines to serve the balancing market on the electricity Grid.

Emissions and operating techniques assessment

Emissions of noise

The primary source of noise at this installation is the gas engines. The Application confirms that the nearest residential receptors are situated approximately 455 metres to the north east of the site.

The Applicant has reviewed the onsite noise generating sources and the potential for impact in line with our H3 Noise guidance Part 2 – Noise Assessment and Control and BS4142 2014.

The Applicant has concluded on the basis of a numerical noise impact prediction that there will not be an adverse impact on the five nearest sensitive receptors either during day-time or night-time. The predictions indicated that noise levels would be below background values. Although the site is not precluded from operating at night, due to the peaking plant mode of operation, in reality it is unlikely that the plant will operate during the night.

We have assessed the Applicant's proposals and agree with the conclusion that there is unlikely to be an impact on the receptors.

Noise Mitigation

To ensure there is no significant risk of noise at the site, the Applicant outlined a number of measures to manage noise emissions and submitted a noise risk assessment:

- Installation of low noise equipment.
- Appropriate location of equipment and buildings.
- The engines will be housed in individual containerised units which are acoustically treated to reduce external noise emissions to an acceptable level.
- All units will be subject to planned preventative maintenance, which will minimise the risk of noise from vibration and plant failure.

Based on the results of the noise assessment and the proposed mitigation measures, we are satisfied that the Applicant has implemented BAT to manage the risk of noise emissions from the facility. We have included improvement condition (IC04) in the permit to ensure the Applicant undertakes monitoring of noise post-commissioning to validate the conclusions of the noise assessment submitted with the application.

Secondary Containment

Lubrication oil for the engines will be stored in bunded containers. Antifreeze will be stored as part of the radiator fluid mix within the generator's bunded closed cooling circuit.

Emissions to Surface Water and Groundwater

Surface water run-off will be captured by a drainage system prior to being discharged to a soakaway via an interceptor.

Emissions to Sewer

There will be no generation of process water within the installation and therefore no emissions to sewer.

Decision checklist

Aspect considered	Decision
Receipt of application	
Confidential information	A claim for commercial or industrial confidentiality has not been made.
Identifying confidential information	We have not identified information provided as part of the application that we consider to be confidential.
Consultation	
Consultation	The consultation requirements were identified in accordance with the Environmental Permitting Regulations and our public participation statement. The application was publicised on the GOV.UK website. We consulted the following organisations: Director of Public Health Public Health England Food Standards Agency Health and Safety Executive Environmental Health, Derby City Council The comments and our responses are summarised in the consultation section.
Operator	
Control of the facility	We are satisfied that the applicant (now the operator) is the person who will have control over the operation of the facility after the grant of the permit. The decision was taken in accordance with our guidance on legal operator for environmental permits.
The facility	
The regulated facility	We considered the extent and nature of the facility at the site in accordance with RGN2 'Understanding the meaning of regulated facility' and Appendix 2 of RGN 2 'Defining the scope of the installation'. The extent of the facility is defined in the site plan and in the permit. The activities are defined in table S1.1 of the permit.
The site	
Extent of the site of the facility	The operator has provided a plan which we consider is satisfactory, showing the extent of the site of the facility. The plan is included in the permit.
Site condition report	The operator has provided a description of the condition of the site, which we consider is satisfactory. The decision was taken in accordance with our guidance on site condition reports.

Aspect considered	Decision
Biodiversity, heritage, landscape and nature conservation	The application is within the relevant distance criteria of a site of heritage, landscape or nature conservation, and/or protected species or habitat. There are a number of Local Nature Reserves and Local Wildlife Sites within 2km of the installation. There are no European Sites or Sites of Special Scientific Interested within the relevant screening distances. We have assessed the application and its potential to affect all known sites of nature conservation, landscape and heritage and/or protected species or habitats identified in the nature conservation screening report as part of the permitting process. We consider that the application will not affect any sites of nature conservation, landscape and heritage, and/or protected species or habitats identified. See key issues section above for further information. We have not consulted Natural England on the application. The decision was taken in accordance with our guidance.
Environmental risk assessment	
Environmental risk	We have reviewed the operator's assessment of the environmental risk from the facility. The operator's risk assessment is satisfactory. See **key issues** section for further information.
Operating techniques	
General operating techniques	We have reviewed the techniques used by the operator and compared these with the relevant guidance notes and we consider them to represent appropriate techniques for the facility. The operating techniques that the applicant must use are specified in table S1.2 in the environmental permit.
Operating techniques for emissions that do not screen out as insignificant	Emissions of oxides of nitrogen cannot be screened out as insignificant. We have assessed whether the proposed techniques are BAT. The proposed techniques/ emission levels for emissions that do not screen out as insignificant are in line with the techniques and benchmark levels contained in the technical guidance and we consider them to represent appropriate techniques for the facility. The permit conditions ensure compliance with relevant guidance and ELVs deliver compliance with those specified in EPR and Medium Combustion Plant Directive (MCPD).
Permit conditions	
Improvement programme	Based on the information on the application, we consider that we need to impose an improvement programme. IC01 has been included to ensure the Applicant reports the outcome of the commissioning of the installation to the Environment Agency. This is to ensure that the operator demonstrates that the installation will operate in line with the operating techniques specified in the permit application. IC02 has been included to provide evidence to establish the methane

Aspect considered	Decision
	emissions from the engines when operating. IC03 has been included to provide evidence to establish the emissions and relationship (if any) of Carbon Monoxide and formaldehyde from the engines and to undertake an assessment of the impacts of these emissions. IC04 has been included in the permit to ensure the Applicant undertakes monitoring of noise post-commissioning to validate the conclusions of the noise assessment submitted with the application.
Emission limits	ELVs have been set for the following substances. Oxides of Nitrogen (NO_x and NO_2 expressed as NO_2). These limits have been imposed in line with the requirements of the Medium Combustion Plant Directive MCPD for this type of plant. It is considered that the ELVs/ equivalent parameters or technical measures described above will ensure that significant pollution of the environment is prevented and a high level of protection for the environment secured.
Monitoring	We have decided that monitoring should be carried out for the parameters listed in the permit, using the methods detailed and to the frequencies specified. These monitoring requirements have been imposed in order to meet the requirement of the Medium Combustion Plant Directive (MCPD). Based on the information in the application we are satisfied that the Applicant's techniques, personnel and equipment have either MCERTS certification or MCERTS accreditation as appropriate.
Reporting	We have specified reporting in the permit. Reporting frequencies are based on annual requirement for monitoring and that the site operates at 1,500 hours per year as a rolling average. The result will allow us to compare air emissions and operating hours specified in the air quality modelling to ensure they reflect those achieved in practice are in line with Medium Combustion Plant Directive.
Operator competence	
Management system	There is no known reason to consider that the operator will not have the management system to enable it to comply with the permit conditions. The decision was taken in accordance with the guidance on operator competence and how to develop a management system for environmental permits.
Relevant convictions	The Case Management System has been checked to ensure that all relevant convictions have been declared. No relevant convictions were found. The operator satisfies the criteria in our guidance on operator competence.
Financial competence	There is no known reason to consider that the operator will not be financially able to comply with the permit conditions.
Growth Duty	

Aspect considered	Decision
Section 108 Deregulation Act 2015 – Growth duty	We have considered our duty to have regard to the desirability of promoting economic growth set out in section 108(1) of the Deregulation Act 2015 and the guidance issued under section 110 of that Act in deciding whether to grant this permit. Paragraph 1.3 of the guidance says: "The primary role of regulators, in delivering regulation, is to achieve the regulatory outcomes for which they are responsible. For a number of regulators, these regulatory outcomes include an explicit reference to development or growth. The growth duty establishes economic growth as a factor that all specified regulators should have regard to, alongside the delivery of the protections set out in the relevant legislation." We have addressed the legislative requirements and environmental standards to be set for this operation in the body of the decision document above. The guidance is clear at paragraph 1.5 that the growth duty does not legitimise non-compliance and its purpose is not to achieve or pursue economic growth at the expense of necessary protections. We consider the requirements and standards we have set in this permit are reasonable and necessary to avoid a risk of an unacceptable level of pollution. This also promotes growth amongst legitimate operators because the standards applied to the operator are consistent across businesses in this sector and have been set to achieve the required legislative standards.

Consultation

The following summarises the responses to consultation with other organisations, our notice on GOV.UK for the public and the way in which we have considered these in the determination process.

Responses from organisations listed in the consultation section

Response received from
Director of Public Health
Brief summary of issues raised
No response received
Summary of actions taken or show how this has been covered
Not applicable

Response received from
Public Health England
Brief summary of issues raised
The main emissions of potential concern are nitrogen oxides from the twenty gas engines, likely to be operational for approximately 1,500 hours per year during peak times (7-9 am and 5-7 pm). Modelling by the applicant indicates that there will be no exceedance of the nitrogen dioxide air quality standards, including within the Air Quality Management Areas and at other roadside locations. Based on the information contained in the application supplied to us, Public Health England has no significant concerns regarding the risk to the health of the local population from the installation. This consultation response is based on the assumption that the permit holder shall take all appropriate measures to prevent or control pollution, in accordance with the relevant sector guidance and industry best practice.
Summary of actions taken or show how this has been covered
No action required. See key issues section for further information on the assessment of air quality.

Response received from
Health and Safety Executive
Brief summary of issues raised
No response received
Summary of actions taken or show how this has been covered
Not applicable

Response received from
Food Standards Agency
Brief summary of issues raised
No response received
Summary of actions taken or show how this has been covered
Not applicable

Response received from
Environmental Health – Derby City Council
Brief summary of issues raised
A number of queries were raised in relation to noise including lack of clarity on the source of plant data used for the noise report and the selection of sensitive receptors. The assessment does not appear to recommend any noise mitigation requirements for the proposed units. The apparent absence of any noise mitigation does not in my view represent BAT. Given the uncertainties around the source data used in the assessment and the potential non-compliance with BAT, the Environmental Protection Team would recommend that additional noise mitigation is added as a requirement under the Permit. Alternatively, a requirement for further detailed noise assessment and associated mitigation that may be necessary is recommended. The proposal has been granted planning permission by Derby City Council during which concerns were raised about the scheme's potential impact upon local air quality and noise. The stack height proposed at planning was 13.6m and for the permit application is proposed at 8m. The site has a history of industrial usage and is therefore at risk of being contaminated. No assessment of land contamination has been included in support of either the Permit or Planning applications. However, conditions have been specified within the Planning consent which required additional information to be provided.
Summary of actions taken or show how this has been covered
Clarity was sought on the source of plant data used and selection of sensitive receptors identified in the noise assessment. A review of the noise assessment was carried out and we agree with the applicant's conclusions that there is unlikely to be an impact at the sensitive receptors from the operation. The noise from the operation was below background levels. In addition, the operation is unlikely to operate at night when the background noise is at its lowest. The permit will contain a condition relating to noise which enables the Environment Agency to request a noise management plan if deemed necessary. An assessment of BAT for stack height was requested as no justification for the selection of 8m high stacks was provided with the original application. The assessment demonstrated that an increase in stack height would not result in a significant reduction in process contribution of oxides of nitrogen from the process. In addition, our assessment of the air quality modelling resulted in the conclusion that exceedances of Air Quality Standards are unlikely based on the operating regime of the plant. Our groundwater and contaminated land team assessed the information provided with the application and concluded that the risk of pollution of land or water for this installation is low. See the key issues section for further details on how the noise and air quality have been considered through the permit determination process.

Representations from local MP, **councillors and parish/town community councils**

None received

Representations from community and other organisations

None received

Representations from individual members of the public.

None received